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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/070,619	10/28/2002	Aeneas B Massara	2490-17	9169
23117	7590	04/20/2004	EXAMINER	
NIXON & VANDERHYE, PC 1100 N GLEBE ROAD 8TH FLOOR ARLINGTON, VA 22201-4714			MENEFEY, JAMES A	
			ART UNIT	PAPER NUMBER
			2828	

DATE MAILED: 04/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/070,619	MASSARA ET AL.	
	Examiner	Art Unit	
	James A. Menefee	2828	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 March 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-36 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>20030819</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

In response to the amendment filed 3/5/2004, the abstract is added, new drawings are submitted, claims 1, 18, and 20 are amended, and claims 22-36 are added. Applicant's listing of claims lists claims 22-35 as either previously presented or amended, and only claim 36 as added. However, there is no record in the file of the existence of claims 22-36 prior to the amendment of 3/5/2004, thus these claims are treated as new claims. Claims 1-36 are pending.

Information Disclosure Statement

The Information Disclosure Statement filed 8/19/2003 is now considered by the Examiner. Note that certain references have been crossed out. This is because they have already been considered on a different IDS filed in this application and thus are already made of record in this application. See the attached signed copy for more detail.

Drawings

The drawings were received on 3/5/2004. These drawings are acceptable.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fiddymment et al. (previously cited US 4,805,184) in view of Burt et al. (previously cited US 6,052,213).

Regarding claims 1 and 36, Fiddymment discloses an optical device comprising a laser diode having a ridge waveguide located above an active layer and guiding light from a first end to a second end, the waveguide having a distributed reflector arranged on either side of the ridge between the first and second ends. It is not disclosed that the reflector is a lattice of individual elements arranged in a two dimensional array. Burt teaches that a grating may be formed of a lattice of individual elements arranged in a two dimensional array. It would have been obvious to one skilled in the art to replace Fiddymment's grating with a grating such as in Burt because it provides for a highly efficient grating, as taught by Burt.

Regarding claim 2, the distributed reflector comprises a structure in material above the active layer on either side of the ridge.

Regarding claims 3, 7-8, 11-13, 15-16, and 25, the particular depth and location of the distributed reflector is not disclosed. However, it is well known to include in such a laser device a distributed reflector at the depths and locations as claimed, and it would have been obvious to one skilled in the art to do so as an obvious design consideration as these considerations will provide known changes in the output characteristics.

Regarding claims 4-6, Burt teaches the individual elements are holes. They may be arranged in a hexagonal or square array (Fig. 4a-b).

Regarding claims 9-10 and 22-23, the holes are regions of different refractive index and gain as that of the device structure.

Regarding claims 14 and 26, the distributed reflector is within the device.

Regarding claims 17-18, and 30 it is not disclosed that there are means for varying a bias to the device or that the wavelength can be tuned. It is well known in lasers having gratings that the bias voltage may be varied and the output tuned. It would have been obvious to one skilled in the art to do these things to provide efficient operation and to control the wavelength to meet a desired application, as is well known.

Regarding claims 19-21 and 33-35, these additional portions of the laser are not disclosed, but it is well known in the art to include any of these portions. It would have been obvious to one skilled in the art to include these portions to provide additional control over the output of the device as a matter of obvious engineering design choice.

Regarding claim 24, the grating may be introduced across the waveguide on one or both sides.

Regarding claim 27, the grating may be in a pumped or un-pumped region.

Regarding claims 28-29, the pumping may be done by isolated electrical contacts.

Regarding claims 31-32, the operation of the device being high speed or mode-hop free is not explicitly disclosed. While features of an apparatus may be recited either structurally or functionally, claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function. *In re Schreiber*, 128 F.3d 1473, 1477-78, 44 USPQ2d 1429, 1431-32 (Fed. Cir. 1997); *see also In re Swinehart*, 439 F.2d 210, 212-13, 169 USPQ 226, 228-29 (CCPA 1971); *In re Danly*, 263 F.2d 844, 847, 120 USPQ 528, 531 (CCPA 1959). “[A]pparatus claims cover what a device is, not what a device does.” *Hewlett-Packard Co. v. Bausch & Lomb Inc.*, 909 F.2d 1464, 1469, 15 USPQ2d 1525, 1528 (Fed. Cir. 1990). Thus, the manner of the device operation does not distinguish from the prior art, because there is no structural distinction.

Response to Arguments

Applicant's arguments, filed 3/5/2004, have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made above. This rejection remedies the deficiencies of Lang that were caused by the amendment to claim 1.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

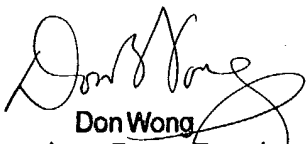
Any inquiry concerning this communication or earlier communications from the examiner should be directed to James A. Menefee whose telephone number is (571) 272-1944. The examiner can normally be reached on M-F 8:30-5.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JM
April 7, 2004


Don Wong
Supervisory Patent Examiner
Technology Center 2800